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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/101,508	09/30/1998	JEAN-LOUIS BOYER	100983	9727
25944	7590	01/23/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			CHAMBERS, TROY	
		ART UNIT		PAPER NUMBER
		3641		remail 2-19-04 ORS
DATE MAILED: 01/23/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/101,508	BOYER ET AL.
	Examiner	Art Unit
	Troy Chambers	3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 22 October 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 14-29 and 32-42 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 14-29 and 32-42 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) Interview Summary (PTO-413) Paper No(s) _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION***Specification***

1. The substitute specification filed October 22, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material that is not supported by the original disclosure is as follows: the specification contains instances of new matter, all of which will not be repeated. For example: pg. 5, line 7 recite the phrase, "an electromechanical assembly comprising, *for example*, a mechanical clock. In the original specification, the mechanical clock was not disclosed as an "example" of an electromechanical assembly. The phrase "for example" should be removed because it broadens the range of elements that may qualify as an electromechanical assembly. Applicant is required to cancel the new matter in the reply to this Office Action.

2. The Examiner has withdrawn any previous objections not repeated herein.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3641

1. Claims 14 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, applicant's claim 14 recites, "wherein the timing means and power generating means have resistors limiting *the first power intensity.*" However, the specification discloses resistor that limit "a current" if transistors 50 and 55 fail rather than limit the first power intensity. It is the Examiner position that the first power intensity is already insufficient to prime the detonator. This understanding is supported by the applicants own claim 14 ("the first power intensity from the power supply not being sufficient to actuate the firing element), the specification (pg. 2, ll. 10, "the first current *emerging* from the power supply not being sufficient) and arguments presented in previous amendments (Amend. B, filed 04 April 2001, pg. 5, ll. 20-23).

1. Claims 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, it is not clear how or why the resistors limit the first power intensity. As the Examiner stated above, the specification and prosecution history make it clear that the initial intensity (6V) provided by the power supply is not sufficient to prime the detonator but only sufficient to charge the capacitor. Hence, the applicant's claim of resistors limiting the power supply even further does not make sense.

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2. Claims 36-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, claim 36 recites, "the first power intensity *combined* with a power intensity provided by discharging the capacitor at the expiration of the timing interval provides a second power intensity sufficient to actuate the firing element." However, the first power intensity is not combined with a power intensity provided by discharging the capacitor. The first power intensity is used to charge a capacitor and is shut off. The new power intensity held by the capacitor is the second power intensity. If, as the applicant claims, a first power intensity is combined with a power intensity provided by discharging the capacitor (a second power intensity), then a third power intensity would result. This is not provided for in the specification.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. As applicant's claimed device can best be understood in view of the above objections/rejections, claims 14-20, 22, 23, 25, 26, 27, 28, 32, 33, 34, 35 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5014622 issued to

Jullian. Jullian discloses a blasting cap (EBC1-3) and either a galvanometer 18 or blasting machine 20 for its detonation.

3. With respect to claim 14, Jullian discloses a blasting cap having timing means comprising switching means (transistors Q1, Q2 and Q3); and, an electrical power supply and power generating means, comprising a first power supply to control and operate the control logic supply; a second power supply to detonate an igniter circuit; the first power supply being insufficient to detonate the device. (Col. 9, II. 3-22). Also disclosed is a plurality of resistors R1-R5, R13 and R14 for limiting current intensity. Even if the switching means fails, the first power supply intensity is not sufficient to prime the detonator.

4. With respect to claim 15, each power supply is controlled by a chargeable capacitor (col. 9, II. 3-5, II. 23-40 and II. 41-57) that also includes switching means including transistors and an integrated circuit (IC) for controlling the switching.

5. With respect to claim 16, refer to the rejection of claims 14 and 15 above.

6. With respect to claim 17, Jullian discloses control means IC.

7. With respect to claim 18, Jullian discloses transistors Q1, Q2 and Q3.

8. With respect to claim 19, Jullian discloses programming means 18.

9. With respect to claim 20, Jullian discloses code wheel (keyboard 24).

10. With respect to claim 22, programming means 18 is external and has connector 30.

11. With respect to claim 23, refer to the col. 4, II. 7 to col. 5, II. 40 that discloses the various components of the external programming means including a power supply (12V

DC power supply), a microcontroller 52, display 26 and programming switches (col. 5, ll. 30-35).

12. With respect to claim 25, Jullian discloses programming means 18 having microcomputer 52.

13. With respect to claim 26, Jullian discloses connector 30.

14. With respect to claim 27, the blasting galvanometer itself can serve as a mechanical timing means.

15. With respect to claim 28, the operator or keyboard comprises the booby trap means.

16. With respect to claims 32 and 33, Jullian discloses galvanometer 16.

17. With respect to claims 34 and 35, Jullian discloses control means IC and, as stated previously, the power supply provided by the capacitor C1 is not sufficient to prime the detonator. The insufficiency of the charge of C1 will be the case regardless of the failure of any other components.

18. The Applicant may notice that a single element may have been used to reject different means limitations in different claims. Applicant should be made aware that a single limitation might be a part of more than one means limitation. For example, a battery may be part of an applicant's energy means and generating means.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jullian in view of U.S. Patent No. 5899553 issued to Howell. Jullian discloses a galvanometer and blasting machine having code wheel 24, 74. However, it is not disclosed that the code wheels are illuminated. Howell discloses a device for the illumination of keypads. At the time of the invention, one of ordinary skill in the art would have found it obvious to provide the code wheels of Jullian with the illumination device of Howell. The suggestion/motivation for doing so would have been to provide a means for illuminating a push-button keypad.

21. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jullian in view of Jarrot. Jullian discloses a safe/arm device as described above. However, Jullian does not disclose the use of phototransistors. Jarrott discloses such subject matter. Specifically, Jarrott discloses a programmable electronic delay fuse comprising: a power source 33; a programmable timer 2 including a first delay timer A and a second delay timer B; an optical interface unit 1 (phototransistors) for transmission of delay-related clock signals to an external programming unit; a control processor 31; a display 32; and a keyboard 30. At the time of the invention, one of ordinary skill in the art would have found it obvious to provide the device of Jullian with the subject matter of Jarrott. The suggestion/motivation would have been to convey information via light rather than through a cable.

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3. Claim 16, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 5218574 issued to Peregrim in view of Jullian. Peregrim discloses an electrical firing circuit including a breakwire 44, a delay time switch 42, transistors 56, 62, 76 and a silicon-controlled rectifier. Peregrim also discloses a plurality of resistors including 58 and 60 and capacitors 16, 22 and 46. However, Peregrim does not disclose a circuit configuration in which a first power supply operates a timing means and a second power supply capable of actuating the primer, the first power supply not capable of actuating the primer even if the switching means fails. As explained above, Jullian discloses such a circuit. At the time of the invention, one of ordinary skill in the art would have found it obvious to provide the electrical breakwire circuit with the features disclosed by Jullian. The suggestion/motivation for doing so would have been to increase the safety factor of the Peregrim circuit.

MICHAEL J. CARLONE
SUPERVISORY PATENT EXAMINER

Response to Arguments

Applicant's arguments filed 22 October 2003 have been fully considered but they are not persuasive.

With respect to the "even if the switching means fail" limitation in applicants claims, col. 5, ll. 14-19 make it clear that the 12 volt power supply is not capable of detonating the device unless it is properly increased to 48 volts. If "other components" (applicant does not specify which components must fail so any will be chosen) fail (e.g. the components used to increase the voltage from 12 volts to 48 volts) then the 12 volts will be insufficient to detonate the device.

The Applicant argues Jullian does not disclose an electronic circuit design using components that can limit current intensity in case of power supply disturbances, hazardous phenomena, etc. However, the Examiner has found present in Jullian each and every claim limitation including the limitation requiring the safe operation of the device "even if the switching means fails" as described above.

The Applicant argues Jullian does not disclose the claimed switching means. To the contrary, Jullian discloses Q1-Q3, a silicon controlled rectifier (SCR). Transistor Q2 serves to short the capacitor C2 and, therefore, must be turned off to perform the arming sequence (col. 9, ll. 50-57).

With respect to the rejection of claim 20, the Applicant argues that Howell "does not teach or suggest a programming means having at least one code wheel electrically connected to a microcontroller." However, the Howell reference was only used to teach

the illumination of keypads. It is Jullian that disclose the programming means having at least one code wheel electrically connected to a microcontroller.

With respect to the rejection of claim 24, the Applicant argues, "Jullian and Jarrot taken alone or in combination do not disclose preventing actuation of a firing element even if a switching means fails." However, as explained above, Jullian does disclose this feature.

4. Applicant's arguments with respect to claims 16, 27-29 and 31 as being anticipated by Boucher have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Troy Chambers whose telephone number is (703) 308-5870. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone, can be reached at (703) 306-4198.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-4177. The fax phone number for the organization where this application or proceeding is assigned is (703) 306-7687.

MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER